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US Dept. of Commerce Pat. & Trademark Office

Attorney's Docket No.

22134

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 USC 371**

US. Application No. (if known)

10/070021

INTERNATIONAL APP. NO.

PCT/GR00/00013

INTERNATIONAL FILING DATE

7 March 2000

PRIORITY DATE CLAIMED

9 November 1999

TITLE OF INVENTION

METHOD FOR ENHANCING THE QUALITY OF REFINED CRUDE OIL PRODUCTS

APPLICANT(S) FOR DO/EO/US

Athanasios NIKOLAOU

Applicant herewith submits to the United States Designated/Elected Office (DO/EU/US) the following .

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 USC 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 USC 371.
3. ☐ This is an express request to begin national examination procedures (35 USC 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 USC 317(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 USC 371(c)(2)).
 - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau.
 - b. ☐ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Patent Office.
6. ☐ A translation of the International application into English.
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 USC 371(c)(3)).
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau.
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 USC 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 USC 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 USC 371(c)(5)).

Items 11. to 16. below concern documents or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An Assignment for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
 ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items of information.
Drawing (1 sheets)

US Application no (if known)

International Application no.

JC13 Rec'd PCT/PTO
Attorney's Docket No.

26 FEB 2002

10/070021

PCT/GR00/00013

22134

17. The following fees are submitted:

Basic National Fee (37 CFR 1.492(a)(1)-(5):

Search report has been prepared by the EPO or JP \$890.00

Int'l prel. exam. fee paid to USPTO (37 CFR 1.482) \$710.00

No int'l prel. exam. fee paid to USPTO (37 CFR 1.482)

but int'l search fee paid to USPTO (37 CFR 1.445(a)(2)) \$740.00

Neither int'l prel. exam fee (37 CFR 1.482) nor

int'l search fee (37 CFR 1.455(a)(2)) paid to USPTO \$1040.00

Intl. prel. exam. fee paid to USPTO (37 CFR 1.482)

and all claims satisfied provisions of PCT Art. 33(2-4) \$100.00

ENTER APPROPRIATE BASIC FEE AMOUNT

CALCULATIONS PTO USE ONLY

\$1,040

Surcharge of \$130.00 for furnishing oath or declaration later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(e)).

CLAIMS

NO. FILED

NO. EXTRA

RATE

Total claims

13

0

\$18

\$0

Ind. claims

0

0

\$84

\$0

MULTIPLE DEP. CLAIM(S) (if applicable) (see prel. amt.)

280

TOTAL OF ABOVE CALCULATIONS

\$1,040

Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement
must also be filed (37 CFR 1.2, 1.27, 1.28)

\$520

SUBTOTAL

\$520

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(f)).

TOTAL NATIONAL FEE

\$520

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The Assignment may be
accompanied by an appropriate PTO-1595 cover sheet (37 CFR 3.28, 3.39)

TOTAL FEES ENCLOSED

Amt to be refunded

Amt to be
chargeda. ☐ A check in the amount of \$ to cover the above fees is enclosedb. ☐ Please charge my deposit account 18-2025 \$ to cover the above fees. A copy of this sheet is enclosed.c. ☒ Please charge the amount due to the credit card identified in the attached PTO-2038.d. ☒ The commissioner is authorized to charge any additional fees which may be required or credit any overpayment to deposit
account 18-2025. A copy of this sheet is enclosed

e. A PTO-2038 in the amount of \$ to cover recordal of the Assignment is enclosed

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive
(37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

Send all correspondence to:

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Herbert Dubno, Reg. No. 19,752

Method for the qualitative improvement of the refined products of crude oil

The invention belongs in the field of electronic science and its applications in the field of the industrially manufactured products deriving from the refinement of all qualities of crude oil.

More specifically, the invention concerns the qualitative improvement of the products derived from the separation of oil, through the various processes of industrial production, such as petrol, motor oil, heating oil, paraffin, lubricants, kerosene, jet fuel, volatile gasses, tar, grease, wax, paint solvents, gasses in liquid or gaseous state such as propane and butane and, generally, all the fractions of crude oil, gas or liquid products.

The canalization to the environment of heavy metals, such as lead, arsenic, cadmium and mercury, caused by the burning of carbohydrates, pollutes and poisons daily the environment and leads slowly and steadily to ecological catastrophe. With regard to the problem of atmospheric pollution caused especially by the burning of petrol, in order to reinforce the antiknocking values of petrol, people initially used the addition of lead compounds to the final product of petrol. However, this technique resulted in new pollution and additional damage to the environment.

Despite the strict legislative status in effect both in the European Union and in the USA, as well as in the other continents, and despite the International Treaties signed and ratified at various times by almost all the nations on the planet, the pollution of the atmosphere, then of the hydrosphere, next of the lithosphere and, finally, of the biosphere, is the most serious problem contemporary human civilization faces.

The research to counter and contain the pollution of the atmosphere was aimed mainly at the improvement of the quality of the petrol during the stage of its

production. Thus, for its improvement are used the methods of pyrolysis and hydro-pyrolysis, as well as the process of reclamation where the reactions of isomerism and alkylolysis take place. All these methods lead to the production of a better quality petrol. According, then, to the state-of-the-art technology, the
5 unleaded petrol is considered the best, qualitatively, fuel and the less harmful to the environment.

With regard to countering the problem of the pollution of the atmosphere caused especially by lubricants, for the improvement of their quality, according to the state-of-the-art technology, several methods are used, such as the distillation of the
10 oils using reduced pressure on the residue of the first distillation, which in turn are submitted to further processing for the removal of unwanted compounds, such as the asphaltic and the aromatic compounds, etc. Also, for their improvement, additives are used.

15 To-date there exists no method or product which is applied on the products of crude oil and acts on the toxic substances these contain, limiting satisfactorily their toxic action and upgrading their quality to a great extent, regardless of the production stage in which they are, and which is particularly applied before the use of the product, that is, before the product reaches the final consumer.

20

The aim of the present invention is to bring a solution to the above-mentioned problem of the reduction of the harmful effects caused by the use of the products of crude oil, to the atmosphere, the hydrosphere, the lithosphere and the biosphere.

The present method applies to all the products of all qualities of crude oil. This
25 means: The products which are sent from the refineries directly to the final user, as well as the products which, after their production in the refineries, are forwarded to processing industries for further processing. It also applies to the products which, after their processing in the processing industries, are forwarded to the final user. In addition, the present method can also apply to the final

products. in the storage areas of the gas stations. as well as to the final products even after their packaging. immediately before they are sent for consumption (like. for example. petrol or oil tanks. drums of motor oil or heating oil.) Finally. it also applies to the products transported by boat. container. tanker, etc.

5

The method. applied to the refined products of crude oil. acting on the toxic substances they contain. purifies and balances their chemical compounds. improving them qualitatively. so that the final product used by the consumer produces fewer toxic substances. It constitutes a new, original method of qualitative improvement of all the refined products of crude oil. The qualitative improvement is achieved with the emission towards the products of crude oil of electromagnetic waves covering wide wavelengths, which are produced by electromechanical or electronic devices, the emission of which is pre-programmed, has controlled power, control application time and control quality result.

15

Therefore. the main advantage of the present method is that, in whatever stage of the processing of the products the method is applied, whether immediately after the products leave the refinery or after the products leave the processing industries. it reduces the toxic substances contained in them. which has as a result that when the products reach the market. they are already products of improved quality and, consequently, when they burn they produce less pollution and so damage the environment a lot less.

25 An extremely serious advantage of this method is that the beginning of the improvement is achieved with the beginning of the application of the method, while its required application time for the achievement of substantial improvement is short, not more than a few hours. Another advantage of this method is that it admits wide industrial application and, moreover, it does not require changes in the

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IN THE U.S. PATENT AND TRADEMARK OFFICE

Inventor Athanasios NIKOLAOU
Patent App. Not known (US Nat'l phase of PCT/GR00/00013)
Filed Concurrently herewith
For METHOD FOR ENHACING THE QUALITY OF REFINED
 CRUDE OIL PRODUCTS
Art Unit Not known
Hon. Commissioner of Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Prior to examination of the above-identified application,
please amend as follows:

In the Claims:

Claim 3, line 6, delete "claims 1 and 2", insert instead
-- claim 1 --,

Claim 4, line 6, delete "claims 1, 2 and 3", insert
instead -- claim 1 --,

Claim 5, line 6, delete "claims 1, 2, 3 and 4", insert
instead -- claim 1 --,

Claim 6, lines 6 and 7, delete "claims 1, 2, 3, 4 and 5",
insert instead -- claim 1 --,

Claim 7, lines 6 and 7, delete "claims 1, 2, 3, 4, 5 and
6", insert instead -- claim 1 --,

Claim 8, lines 6 and 7, delete "claims 1, 2, 3, 4, 5 and 7", insert instead -- claim 1 --,

Claim 9, lines 6 and 7, delete "claims 1, 2, 3, 4, 5, 7 and 8", insert instead -- claim 1 --,

Claim 10, lines 6 and 7, delete claims 1, 2, 3, 4, 5, 7, 8 and 9", insert instead -- claim 1 --,

Claim 11, lines 6 and 7, delete "claims 1, 2, 3, 4, 5, 7, 8, 9 and 10", insert instead -- claim 1 --.

This preliminary amendment is submitted just to save claim charges.

Respectfully submitted,
The Firm of Karl F. Ross P.C.



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Enclosures: set of marked-up claims
 set of clean claims

working specifications of the existing industrial or manufacturing facilities. either during the stage of the refining of the crude oil and its products or during the stage of the creation of the final product which is, after selection, ready to be sent to the market. Another advantage of this method is that it is not applied only at the

5 processing stage of the crude oil and its final products but also directly on the final product, even after its packaging (oil tanks, petrol and oil containers, etc..) or while it is in storage areas such as refineries or gas stations reservoirs. Another advantage of this method is that for its application it is not necessary for the products of crude oil to be stationary, nor for the device used for the application of

10 the method. Thus, the method can be applied inside ships or transport containers, so as to achieve the qualitative improvement of the products in the time that transpires from their loading on the ships or the containers until their arrival in their destination points. Another advantage of this method is that it is financially expedient, as it requires very low operational costs, not to mention the fact that the

15 labour cost required for the application of the method is virtually non-existent. The invention is described below, with the aid of non-restrictive examples and with reference to the attached drawing, which illustrates one application form of the method which constitutes the object of the present invention.

The drawing illustrates one application way of the invention, on final or not

20 products of crude oil and in packaged final products.

One application way of the invention is described with reference to the drawing. The products of crude oil (1) are placed in the customary storage areas (2) (reservoirs), or packaged in the customary way (tanks), or are ready for

25 transportation (ships, tankers, etc.) at the customary temperature. Near them is placed an electromechanical or electronic device (3) of programmed operation, which emits electromagnetic waves (6) and from which extends a tube (4) which ends in their emitting antenna (5). The electromagnetic waves (6) are emitted

towards the refined products (1). The emitting antenna (5) may constitute an integral part of the emitting device (3) or be connected to it with a tube (4).

The electromechanical or electronic device (3) produces electromagnetic waves (6) which cover wide wavelength ranges, from 1mm to 11.000km, together with their harmonic frequencies, which are produced by the device and which are emitted either in all the wavelengths from 1mm to 11,000km or in one or more parts of particular areas, so as to achieve a resonance of all the elements of the products of crude oil. The areas of the frequencies to which these electromagnetic waves belong are characterized by the international names EHL (extremely high frequencies), SHF (super high frequencies), UHF (ultra high frequencies), VHF (very high frequencies), HF (high frequencies), MF (medium frequencies), LF (low frequencies), VLF (very low frequencies). The emission of the electromagnetic waves (6) is programmed with the electromechanical or electronic circuit of the device (3) so as not to be continuous but pulsatory. The length between the emitted pulses may be of constant or variable time. The length between the pauses of the emitted pulses may be of constant or variable time.

The emission of the electromagnetic waves (6) may be modulated in any way, or it may not be modulated at all.

The emission potency of the electromagnetic waves (6) increases with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the products of crude oil (1), or even with each augmentative alteration of the volume of the products of crude oil (1), to which the method is applied, in order to achieve the same qualitative improvement at the same time, as well as the reverse. Also, with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the products of crude oil (1), or even with each augmentative alteration of the volume of the products of crude oil (1), to which the method is applied, the

application duration time of the method must be increased in order to achieve the same qualitative improvement with the same potency, as well as the reverse.

Furthermore, there exists the possibility of electromagnetic waves (6) being emitted from more than one device, simultaneously, in the same place. The total simultaneous emission potency provided must always be low, in order to achieve the desired result, but without causing any substantial increase in the temperature of the products of crude oil to which the present method is applied, without the potency descending below 0.0001 mWatt, whether one device is used or more than one devices.

The user of the method is able to decrease the time required for the achievement of the selected level of qualitative improvement by increasing the total simultaneous emission potency provided by the electromagnetic waves (6), which must be maintained in low levels, so as not to cause a substantial increase in the temperature of the products of crude oil, as well as the reverse, but without the emission potency descending below 0.0001 mWatt.

The initiation of the qualitative improvement of the products of crude oil occurs with the initiation of the application of the method, while the required application time for the occurrence of a substantial improvement is short, not more than a few hours.

The duration period of the application of the method is dependent on the type of the products of crude oil to which the method is applied and is proportional to the desirable qualitative result. Thus, the longer the duration period of the application of the method the greater the qualitative improvement of the products of crude oil to which the method is applied.

Also, the method may be applied even if between the source of the pulsatory emission of electromagnetic waves and the products of crude oil there exist materials such as cardboard, wooden boxes, concrete and metals, with the exception of conductible materials which are grounded.

The present method can be widely used by industries and commercial enterprises of crude oil, as well as gas stations, and it can also be applied even to the final products of crude oil during their storage in the places they are customarily stored (like reservoirs). Also, the method can be applied to the products of crude oil even 5 after their packaging in the form and the materials they are customarily packaged (such as barrels, drums, boxes and containers of drums, etc.). Finally, the method can be applied to the products of crude oil during their ground, marine or air transportation, as the proper application of the method does not require that the products be stationary.

10 The method results in a substantial qualitative improvement of the products of crude oil, as it counters the toxic substances they have and contains their toxic action, thus achieving a significant qualitative improvement of the products of crude oil, so that the final product which reaches the consumer and is used by him 15 is less toxic and less polluting to the environment.

OIL I-PCR

ΔΙΕΘΥΣ

ΑΝΤΙΟΓΙΕΥΝ

CLAIMS

1. A method of qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted towards the products of crude oil (1), which method is characterized by the fact that the emission of the electromagnetic waves (6) towards the products of crude oil (1) is programmed through an electromechanical or electronic device circuit (3), so that it is not continuous but pulsatory.

2. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that the programmed pulsatory emission of the electromagnetic waves (6), towards the products of crude oil (1), has small time pauses of variable length or not of their emission signal and by the fact that both the duration time between the emitted pulses and the duration time between their pauses may be of constant or variable time.

3. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claims 1 and 2.

which is characterized by the fact that the electromagnetic waves (6), which are emitted pulsatorily towards the products of crude oil (1), cover wide ranges of wavelengths from 1mm to 11.000 km. together with their harmonic frequencies, which are produced by the device and emitted either at all the wavelengths from 1
5 mm to 11.000 km or at one or more parts of particular areas, so as to achieve a resonance of all the elements of the products of crude oil.

4. A method for the qualitative improvement of the products of crude oil (1),
10 through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claims 1, 2 and 3.
15 which is characterized by the fact that the frequency ranges to which these electromagnetic waves belong are by the international names EHL (extremely high frequencies), SHF (super high frequencies), UHF (ultra high frequencies), VHF (very high frequencies), HF (high frequencies), MF (medium frequencies), LF (low frequencies), VLF (very low frequencies).

20

5. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3),
25 the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claims 1, 2, 3 and 4. which is characterized by the fact that the pulsatory emission of the

electromagnetic waves (6) may be modulated in any way, or it may not be modulated at all.

6. A method for the qualitative improvement of the products of crude oil (1),
5 through the use of electromagnetic waves (6), which cover wide ranges of
wavelengths, which are produced by electromechanical or electronic devices (3),
the emission of which is pre-programmed, its potency is controlled, has a
controlled application time and a controlled qualitative result, which are emitted
pulsatorily towards the products of crude oil (1), according to claims 1, 2, 3, 4 and
10 5, which is characterized by the fact that for its application a device with an
emitting antenna may be used, which can be submerged inside the products of
crude oil, or not, and by the fact that the emitting antenna (5) may constitute an
integral part of the emitting device (3), or be connected to it with a tube (4), as
well as by the fact that during the application of the method it is possible to move
15 the products of crude oil (1) or even the device used for its application (3).

7. A method for the qualitative improvement of the products of crude oil (1),
through the use of electromagnetic waves (6), which cover wide ranges of
20 wavelengths, which are produced by electromechanical or electronic devices (3),
the emission of which is pre-programmed, its potency is controlled, has a
controlled application time and a controlled qualitative result, which are emitted
pulsatorily towards the products of crude oil (1), according to claims 1, 2, 3, 4, 5
and 6, which is characterized by the fact that the emission potency of the
25 electromagnetic waves (6) must be increased with each augmentative alteration of
the distance between the source of the emission (5) of the electromagnetic waves
(6) and the products of crude oil (1), or even with each augmentative alteration of
the volume of the industrial products of crude oil (1), to which the method is

applied. in order to achieve the same qualitative improvement at the same time. as well as the reverse.

8. A method for the qualitative improvement of the products of crude oil (1).
5 through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled. has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1). according to claims 1. 2. 3. 4. 5.
10 and 7, which is characterized by the fact that with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the products of crude oil (1). or even with each augmentative alteration of the volume of the products of crude oil (1), to which the method is applied, the application duration time of the method must be increased in order to achieve the
15 same qualitative improvement with the same potency. as well as the reverse.

9. A method for the qualitative improvement of the products of crude oil (1),
20 through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3). the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claims 1. 2, 3, 4, 5, 7 and 8, which is characterized by the fact that the application of the method can also be achieved with the pulsatory emission of electromagnetic waves (6) from more
25 than one device, simultaneously, in the same place, which have been programmed to emit electromagnetic waves of the same or different potency, and by the fact that the total simultaneous emission potency provided must always be low. in order to achieve the desired result, without causing any substantial increase in the temperature of the products of crude oil to which the present method is applied.

without the potency descending below 0.0001 mWatt. whether one device is used or more than one devices.

10. A method for the qualitative improvement of the products of crude oil (1).
5 through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claims 1, 2, 3, 4, 5,
10 7, 8 and 9, which is characterized by the fact that the user of the method is able to decrease the time required for the achievement of the selected level of qualitative improvement by increasing the total simultaneous emission potency provided by the electromagnetic waves (6), which must be maintained in low levels, so as not to cause a substantial increase in the temperature of the products of crude oil, as
15 well as the reverse, but without the emission potency descending below 0.0001 mWatt.

11. A method for the qualitative improvement of the products of crude oil (1).
through the use of electromagnetic waves (6), which cover wide ranges of
20 wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claims 1, 2, 3, 4, 5, 7, 8, 9 and 10, which is characterized by the fact that the initiation of the
25 qualitative improvement of the products of crude oil occurs with the initiation of the application of the method and is short, a few hours only, and by the fact that the duration period of the application of the method is dependent on the type of the products of crude oil to which the method is applied, as well as by the fact that the duration time of the application of the method is proportional to the desirable

qualitative result, so that the longer the duration period of the application of the method the greater the qualitative improvement of the products of crude oil to which the method is applied.

- 5 12. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted
- 10 pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that it can be applied to all products of crude oil regardless of its quality, that is, to the products which are sent directly from the refineries to the final user, as well as to the products which after their production in the refineries are forwarded to processing industries for further processing, and
- 15 to the products which having been processed by the processing industries are forwarded to the final user.

13. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of
- 20 wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that the method can also be applied even when the
- 25 products or the devices required for its application are not stationary, as well as by the fact that it can be applied even if between the emission source of the pulsatory electromagnetic waves and the products of crude oil there exist materials of any kind, conductible or not, with the exception of conductible materials which are grounded, and therefore the method can have a wide application in industries and

1. *Phragmites australis* (Cav.) Trin. ex Steud.

[illegible]

CLAIMS

1. A method of qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of
5 which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted towards the products of crude oil (1), which method is characterized by the fact that the emission of the electromagnetic waves (6) towards the products of crude oil (1) is programmed through an electromechanical or electronic device circuit (3), so that it is not
10 continuous but pulsatory.

2. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3),
15 the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that the programmed pulsatory emission of the electromagnetic waves (6), towards the products of crude oil (1), has small time
20 pauses of variable length or not of their emission signal and by the fact that both the duration time between the emitted pulses and the duration time between their pauses may be of constant or variable time.

3. A method for the qualitative improvement of the products of crude oil (1),
25 through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1.

which is characterized by the fact that the electromagnetic waves (6), which are emitted pulsatorily towards the products of crude oil (1), cover wide ranges of wavelengths from 1mm to 11.000 km, together with their harmonic frequencies, which are produced by the device and emitted either at all the wavelengths from 1
5 mm to 11.000 km or at one or more parts of particular areas, so as to achieve a resonance of all the elements of the products of crude oil.

4. A method for the qualitative improvement of the products of crude oil (1),
10 through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1,
15 which is characterized by the fact that the frequency ranges to which these electromagnetic waves belong are by the international names EHL (extremely high frequencies), SHF (super high frequencies), UHF (ultra high frequencies), VHF (very high frequencies), HF (high frequencies), MF (medium frequencies), LF (low frequencies), VLF (very low frequencies).

20

5. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3),
25 the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that the pulsatory emission of the

electromagnetic waves (6) may be modulated in any way, or it may not be modulated at all.

6. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claims 1.

which is characterized by the fact that for its application a device with an emitting antenna may be used, which can be submerged inside the products of crude oil, or not, and by the fact that the emitting antenna (5) may constitute an integral part of the emitting device (3), or be connected to it with a tube (4), as well as by the fact that during the application of the method it is possible to move the products of crude oil (1) or even the device used for its application (3).

7. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1.

which is characterized by the fact that the emission potency of the electromagnetic waves (6) must be increased with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the products of crude oil (1), or even with each augmentative alteration of the volume of the industrial products of crude oil (1), to which the method is

applied, in order to achieve the same qualitative improvement at the same time, as well as the reverse.

8. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1.

10 which is characterized by the fact that with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the products of crude oil (1), or even with each augmentative alteration of the volume of the products of crude oil (1), to which the method is applied, the application duration time of the method must be increased in order to achieve the same qualitative improvement with the same potency, as well as the reverse.

15 9. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1.

20 which is characterized by the fact that the application of the method can also be achieved with the pulsatory emission of electromagnetic waves (6) from more than one device, simultaneously, in the same place, which have been programmed to emit electromagnetic waves of the same or different potency, and by the fact that the total simultaneous emission potency provided must always be low, in order to achieve the desired result, without causing any substantial increase in the temperature of the products of crude oil to which the present method is applied.

without the potency descending below 0.0001 mWatt. whether one device is used or more than one devices.

10. A method for the qualitative improvement of the products of crude oil (1).
5 through the use of electromagnetic waves (6). which cover wide ranges of wavelengths. which are produced by electromechanical or electronic devices (3). the emission of which is pre-programmed. its potency is controlled. has a controlled application time and a controlled qualitative result. which are emitted pulsatorily towards the products of crude oil (1). according to claim 1,

10 which is characterized by the fact that the user of the method is able to decrease the time required for the achievement of the selected level of qualitative improvement by increasing the total simultaneous emission potency provided by the electromagnetic waves (6), which must be maintained in low levels, so as not to cause a substantial increase in the temperature of the products of crude oil, as
15 well as the reverse, but without the emission potency descending below 0.0001 mWatt.

11. A method for the qualitative improvement of the products of crude oil (1),
through the use of electromagnetic waves (6), which cover wide ranges of
20 wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result. which are emitted pulsatorily towards the products of crude oil (1), according to claim 1,

which is characterized by the fact that the initiation of the
25 qualitative improvement of the products of crude oil occurs with the initiation of the application of the method and is short, a few hours only, and by the fact that the duration period of the application of the method is dependent on the type of the products of crude oil to which the method is applied, as well as by the fact that the duration time of the application of the method is proportional to the desirable

qualitative result. so that the longer the duration period of the application of the method the greater the qualitative improvement of the products of crude oil to which the method is applied.

5 12. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted
10 pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that it can be applied to all products of crude oil regardless of its quality, that is, to the products which are sent directly from the refineries to the final user, as well as to the products which after their production in the refineries are forwarded to processing industries for further processing, and
15 to the products which having been processed by the processing industries are forwarded to the final user.

13. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of
20 wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that the method can also be applied even when the
25 products or the devices required for its application are not stationary, as well as by the fact that it can be applied even if between the emission source of the pulsatory electromagnetic waves and the products of crude oil there exist materials of any kind, conductible or not, with the exception of conductible materials which are grounded, and therefore the method can have a wide application in industries and

commercial enterprises of crude oil. in gas stations. in the final products of crude oil during their storage in their customary areas. in the packaged products in the form and the materials they are customarily packaged. as well as. finally. in the products of crude oil during their ground, marine or air transportation.

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CLAIMS

1. A method of qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted towards the products of crude oil (1), which method is characterized by the fact that the emission of the electromagnetic waves (6) towards the products of crude oil (1) is programmed through an electromechanic or electronic device circuit (3), so that it is not continuous but pulsatory.
2. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that the programmed pulsatory emission of the electromagnetic waves (6), towards the products of crude oil (1), has small time pauses of variable length or not of their emission signal and by the fact that both the duration time between the emitted pulses and the duration time between their pauses may be of constant or variable time.
3. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to ^{claim} (claims 1 and 2).

which is characterized by the fact that the electromagnetic waves (6), which are emitted pulsatorily towards the products of crude oil (1), cover wide ranges of wavelengths from 1mm to 11.000 km. together with their harmonic frequencies, which are produced by the device and emitted either at all the wavelengths from 1 mm to 11.000 km or at one or more parts of particular areas. so as to achieve a resonance of all the elements of the products of crude oil.

4. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to *claim 1* (claims 1, 2 and 3).

15 which is characterized by the fact that the frequency ranges to which these electromagnetic waves belong are by the international names EHL (extremely high frequencies), SHF (super high frequencies), UHF (ultra high frequencies), VHF (very high frequencies), HF (high frequencies), MF (medium frequencies), LF (low frequencies), VLF (very low frequencies).

20

5. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to *claim 1* (claims 1, 2, 3 and 4), which is characterized by the fact that the pulsatory emission of the

electromagnetic waves (6) may be modulated in any way, or it may not be modulated at all.

6. A method for the qualitative improvement of the products of crude oil (1),
5 through the use of electromagnetic waves (6), which cover wide ranges of
wavelengths, which are produced by electromechanical or electronic devices (3),
the emission of which is pre-programmed, its potency is controlled, has a
controlled application time and a controlled qualitative result, which are emitted
pulsatorily towards the products of crude oil (1), according to ^{claim 1} (claims 1, 2, 3, 4 and
10 5), which is characterized by the fact that for its application a device with an
emitting antenna may be used, which can be submerged inside the products of
crude oil, or not, and by the fact that the emitting antenna (5) may constitute an
integral part of the emitting device (3), or be connected to it with a tube (4), as
well as by the fact that during the application of the method it is possible to move
15 the products of crude oil (1) or even the device used for its application (3).

7. A method for the qualitative improvement of the products of crude oil (1),
through the use of electromagnetic waves (6), which cover wide ranges of
20 wavelengths, which are produced by electromechanical or electronic devices (3),
the emission of which is pre-programmed, its potency is controlled, has a
controlled application time and a controlled qualitative result, which are emitted
pulsatorily towards the products of crude oil (1), according to ^{claim 1} (claims 1, 2, 3, 4, 5
and 6), which is characterized by the fact that the emission potency of the
25 electromagnetic waves (6) must be increased with each augmentative alteration of
the distance between the source of the emission (5) of the electromagnetic waves
(6) and the products of crude oil (1), or even with each augmentative alteration of
the volume of the industrial products of crude oil (1), to which the method is

applied. in order to achieve the same qualitative improvement at the same time. as well as the reverse.

8. A method for the qualitative improvement of the products of crude oil (1),
5 through the use of electromagnetic waves (6), which cover wide ranges of wavelengths. which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled. has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1). according to *claims* 1. 2. 3. 4. 5.
10 and 7, which is characterized by the fact that with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the products of crude oil (1), or even with each augmentative alteration of the volume of the products of crude oil (1), to which the method is applied, the application duration time of the method must be increased in order to achieve the
15 same qualitative improvement with the same potency. as well as the reverse.

9. A method for the qualitative improvement of the products of crude oil (1),
through the use of electromagnetic waves (6). which cover wide ranges of wavelengths. which are produced by electromechanical or electronic devices (3).
20 the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to *claim* 1. 2. 3. 4. 5. 7 and 8, which is characterized by the fact that the application of the method can also be achieved with the pulsatory emission of electromagnetic waves (6) from more
25 than one device, simultaneously, in the same place, which have been programmed to emit electromagnetic waves of the same or different potency, and by the fact that the total simultaneous emission potency provided must always be low. in order to achieve the desired result, without causing any substantial increase in the temperature of the products of crude oil to which the present method is applied.

without the potency descending below 0.0001 mWatt. whether one device is used or more than one devices.

10. A method for the qualitative improvement of the products of crude oil (1).
5 through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to ^{claim 1} (claims 1, 2, 3, 4, 5.
10 7, 8 and 9), which is characterized by the fact that the user of the method is able to decrease the time required for the achievement of the selected level of qualitative improvement by increasing the total simultaneous emission potency provided by the electromagnetic waves (6), which must be maintained in low levels, so as not to cause a substantial increase in the temperature of the products of crude oil, as
15 well as the reverse, but without the emission potency descending below 0.0001 mWatt.

11. A method for the qualitative improvement of the products of crude oil (1).
through the use of electromagnetic waves (6), which cover wide ranges of
20 wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to ^{claim 1} (claims 1, 2, 3, 4, 5.
7, 8, 9 and 10), which is characterized by the fact that the initiation of the
25 qualitative improvement of the products of crude oil occurs with the initiation of the application of the method and is short, a few hours only, and by the fact that the duration period of the application of the method is dependent on the type of the products of crude oil to which the method is applied, as well as by the fact that the duration time of the application of the method is proportional to the desirable

qualitative result, so that the longer the duration period of the application of the method the greater the qualitative improvement of the products of crude oil to which the method is applied.

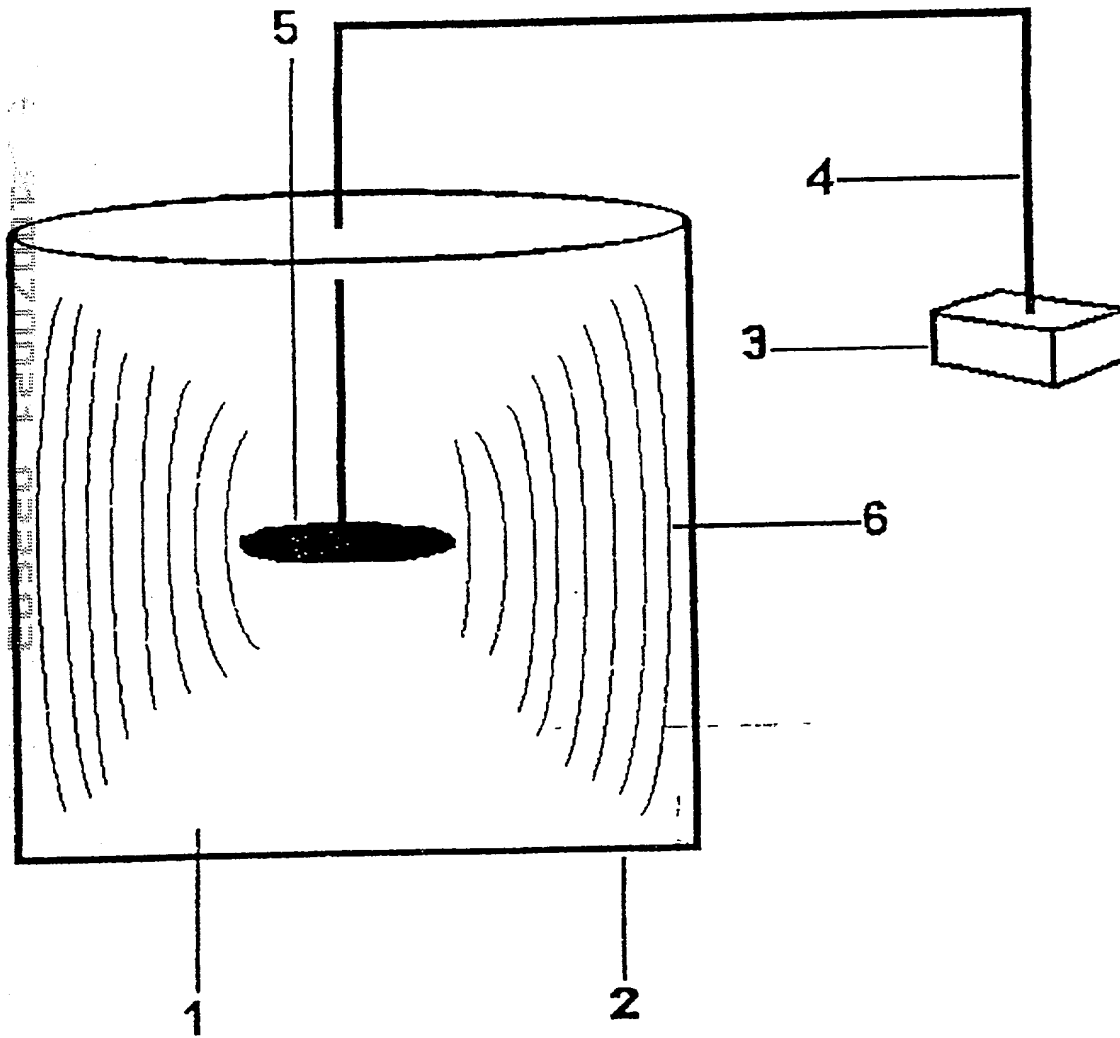
5 12. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted
10 pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that it can be applied to all products of crude oil regardless of its quality, that is, to the products which are sent directly from the refineries to the final user, as well as to the products which after their production in the refineries are forwarded to processing industries for further processing, and
15 to the products which having been processed by the processing industries are forwarded to the final user.

13. A method for the qualitative improvement of the products of crude oil (1), through the use of electromagnetic waves (6), which cover wide ranges of
20 wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the products of crude oil (1), according to claim 1, which is characterized by the fact that the method can also be applied even when the
25 products or the devices required for its application are not stationary, as well as by the fact that it can be applied even if between the emission source of the pulsatory electromagnetic waves and the products of crude oil there exist materials of any kind, conductible or not, with the exception of conductible materials which are grounded, and therefore the method can have a wide application in industries and

commercial enterprises of crude oil. in gas stations. in the final products of crude oil during their storage in their customary areas. in the packaged products in the form and the materials they are customarily packaged. as well as. finally. in the products of crude oil during their ground, marine or air transportation.

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Drawing 1



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DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that: My residence, post-office address, and citizenship are as stated below next to my name,
I believe that I am the original, first, and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD FOR ENHACING THE QUALITY OF REFINED CRUDE OIL PRODUCTS

the specification of which was filed on **7 March 2000** as PCT application **PCT/GR00/00013**.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56. I hereby claim foreign priority benefits under 35 USC 119 of any foreign applications for patent or inventor's certificate listed below and have also identified below any foreign applications for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Applications

| Country | Number | Filing Date | Priority claimed |
|---------|-----------|-----------------|------------------|
| EP | 9960021.2 | 9 November 1999 | Yes |

I hereby claim the benefit under 35 USC 120 of the United States Application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States Application(s) in the manner provided by the first paragraph of 35 USC 112, I acknowledge the duty to disclose material information as defined in 37 CFR 1.56 which occurred between the filing date of the prior application and the national or PCT International filing date of this application:

| Serial Number | Filing Date | Status |
|----------------|--------------|---------|
| PCT/GR00/00013 | 7 March 2000 | Pending |

I hereby appoint as attorneys to prosecute this application and to transact all business connected therewith: Herbert Dubno, Reg. 19,752; Jonathan Myers, Reg. 26,963; Andrew Wilford, Reg. 26,597 and each of them individually.

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(718) 884-6600

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 USC 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole inventor:

Athanasios NIKOLAOU

Inventor's signature

Date:

2/7/2002

Residence: **Megara Attikis, Greece**

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Citizen of Greece

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